



NORTH DAKOTA DEPARTMENT OF HEALTH
Environmental Health Section

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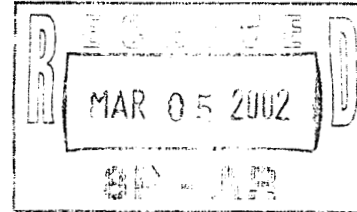
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February 27, 2002



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KEVIN
MEGAN
AMY

Mr. Richard Long (AP-AR)
Chief, Air Programs Branch
U.S. EPA Region VIII
999 18th Street, Suite 500
Denver, CO 80202-2466

Re: Acid Rain Database

Dear ~~Mr. Long~~: *Dick*

This letter is to follow up discussions between the Department and Region VIII personnel regarding the use of Acid Rain Program data for determining compliance with State emission limits and the Prevention of Significant Deterioration (PSD) increments. An email provided to Kevin Golden on February 2, 2002 regarding this topic is also referenced. As we have stated previously, the Department believes that the data, especially before January 1, 2000, is not sufficiently accurate for these purposes.

The continuous emission monitors at all the power plants in North Dakota with the exception of Heskett Station Unit 1, are subject to the Acid Rain Program requirements. Coal Creek Station, Coyote Station, Antelope Valley Station, M.R. Young Station Unit 2 and Stanton Station Unit 10 are also subject to requirements under the New Source Performance Standards. The Acid Rain Program and New Source Performance Standards (NSPS) have different certification requirements. The New Source Performance Standards allow a relative accuracy of $\pm 20\%$ and do not require a bias adjustment factor. The Acid Rain requirements include a relative accuracy of $\pm 10\%$ and bias adjustment factor for those monitors that are reading lower than the applicable test method. A bias adjustment factor is not allowed if the monitor is reading higher than the test method. The Acid Rain requirements also require the source to substitute data into the database when the continuous emission monitors are out of service. The New Source Performance Standards do not require this substitution. In general, the substitution is punitive towards the source because it overstates the emission rate. The Department has allowed all sources to demonstrate compliance with short-term permit limits based on NSPS criteria.

Several of the power companies in North Dakota have experienced problems in accurately measuring the flow in the stack because of

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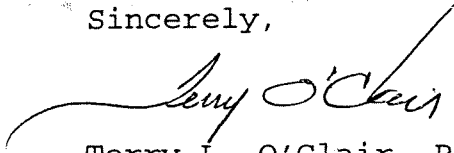
non-linear flow patterns (cyclonic flow). In response to this nationwide problem, EPA developed three new test methods to more accurately measure the flow. These test methods were generally not used until well into 1999. Based on conversations with industry, these flow discrepancies may have caused emissions to be over predicated by as much as 20%. The Department recognized this problem early after the continuous emission monitors were installed. Based on evidence supplied by Great River Energy, the Department allowed a different method for determining compliance with the State emission limits at Coal Creek Station.

This whole issue was the subject of a meeting in Washington, DC in October of last year. Although the meeting was specific to stationary gas turbines, the issues discussed are directly applicable to power plants in North Dakota. Enclosed is a summary of the topics that were discussed at that meeting. As you can see, many of the issues that we have brought up in the past were discussed at this meeting in addition to other relevant issues.

In summary, we believe that data from the 1999 Acid Rain database should not be used for determining compliance with non-acid rain emission limits or PSD Increments. This data is biased high and does not accurately portray the compliance status. The data before January 1, 2000 is less accurate than later data because of the flow measurement problems at various plants.

If you have any questions, please feel free to contact me.

Sincerely,



Terry L. O'Clair, P.E.
Director
Division of Air Quality

TLO/TB:alm

Enc:

xc: Francis Schwindt, Chief, EHS

Stakeholders Input Regarding Streamlining Turbine Compliance October 9, 2001 at CAMD Office, Washington, DC

The following is a list of topic areas discussed at the meeting

I. Reporting Requirements under Part 75 and Part 60

Input provided in advance:

- Should sources be able to use Part 75 EDR as excess emission report for Part 60 compliance?
Potential barriers include:
 - ✓ use of substitute data,
 - ✓ difficulties retrieving information from Part 75 records,
 - ✓ differences in reporting frequency,
 - ✓ averaging periods, and units of measure
- Agency should create consistent definitions of valid operating hours for Da, Db, GG and Part 75.
- Turbines that are low emitters and operate at specific loads, and do not use water to fuel injection, should not need to do a multi-load testing.

New Input:

- Objection to the use of substitute data for Part 75
 - Substitute data are “made up” and do not reflect true emissions from the source
 - Substitute data are acceptable for emissions trading programs, but not for compliance-related programs
 - Data submitted for Part 75 are bias-adjusted CEMS data, while Part 60 data are not adjusted. This is one difference to address in combining them.
 - Best data should be used for compliance purposes
- Variety of interpretations of Part 60 requirements by different states makes for greater complexity
 - State Interpretations of Part 60 vary, including of data validation, EPA should issue guidance. Pennsylvania has a document which was specifically useful and worthy of further investigation.
 - Work with states to standardize Part 60 reporting formats and requirements; develop a model rule or model electronic data reporting (EDR) format
 - Figure out how to get all states on board, work with states
 - OAQPS grants waivers and use of alternative methods on case-by-case basis; it may be useful to compile waivers into one document
 - Develop guidance on how sources can petition for a waiver under Part 60
 - Lead times for petitions are sometimes too long to be able to include approved alternatives in the permit
 - It will be useful to provide guidance to state and regions, however, regulatory language may sometimes be necessary to get States on a more uniform basis
 - Some states require separate source compliance tests and RATAs; states need to understand that compliance can be determined using RATA data

- Applicability determinations should be incorporated into the rules.
- Different definitions in Part 60 and Part 75
 - Need consistent definitions that are used in both Part 60 and Part 75. Operating hour and day were of the greatest interest. It was generally agreed that any common definitions must consider original rationale
 - Operating day (24-hour rolling averages can be clock or operating hours)
 - Need to reconsider definition of peaking unit to allow greater utilization
 - Define three combustion turbine types: 1) baseload; 2) peaking; 3) non-baseload or peaker that exceeds utilization, e.g., “cycling” unit
 - Look at alternative definition of peaking units, perhaps based on total emissions per year
 - Fuel switching produces high emissions; definition of hour should be clarified for compliance or should be revised
- Start up and shut down
 - Periods and the treatment of this data should be evaluated; how do equations apply? (Part 75 and 60 treat source startup/shutdown periods differently)
 - Clarify how start up and shut down are included in averaging time
 - Keep the diluent cap in part 75. This prevents “run away” emissions due to diluent value in the denominator of equation to compute lb/mmBtu
 - Account for emissions during start up and shut down as opposed to limiting emissions during these times; count emission in total but don’t have limits.
 - Interpretations for start up and shut down should include exemptions for dual fired units (units that switch fuels multiple times during operation)
 - Part 75 regulations do not effectively handle units that idle at 2 -3 MW
- Before making any changes to Part 60, need to consider the impact that changes to Part 60 may have on other sources, such as incinerators
- Subpart GG
 - Not applicable to new units because many new units do not have water injection. Even those that do, have emissions well below 100 ppm levels even when malfunctioning. What is the value of GG for such new units?
 - The datedness of subpart GG might be addressed by Establishing a cut-off date for subpart GG applicability
 - Some commenters questioned the value of multi-load testing on units without water injection under both Part 60 and 75?
 - Part 60 NSPS monitoring requirements didn’t envision CEMS; suggest that units using CEMS just follow Part 75 requirements
 - The span requirement for 300 ppm for a monitor is no longer appropriate considering the low NO_x standards and available control technology

II. Continuous Monitoring Practices and Quality Assurance

Input provided in advance:

- Performance Specification
 - ✓ Flexibility to perform the 7 day drift test over consecutive operating days. Should this test be done for peaking units?
 - ✓ Part 60, App F, §60.8 and §60.13. Sources indicated that these requirements should be revised to eliminate the need of performance testing for pollutants which are being monitored by CEMS, since CEMS demonstrate compliance on a continuous basis.
 - ✓ Compliance certification tests for Part 60 and 75 compliance should be done at the same time.
- Sources required to perform linearity checks that are subject to Part 75 requirements should have Part 60 Cylinder Gas Audits requirements waived.
- Part 60 and Part 75 QA procedures need to be reviewed to assure that they are appropriate for low emitters, e.g., alternative relative accuracy and calibration error performance specs may be needed for low emitters
- Also for low emitters the enhanced importance of NO/NO₂ conversion efficiency variability and NO₂ absorption in water should be analyzed.
- Explore different ways to address start up emissions from peakers and low emitters in lieu of dual range monitors.
- Allow off-line calibration tests for extractive CEMS. Many new turbines use extractive CEMS to measure low concentration.
- Should Part 75 and Part 60 allow for PEMS for combustion turbines instead of CEMS?

New Input:

- 7-day drift test/calibration
 - Why is this test relevant, considering that CEMS are required to conduct a daily calibration check after certification?
 - Sometimes it is difficult to complete the 7-day drift test within certification period, especially for non-baseload units. Times need to be relaxed.
 - Off-line/on-line testing doesn't work for non-baseload, non-peaking units specially with fuel switching units (i.e., cycling units)
 - Off-line/on-line matters only for some dilution systems (i.e., dilution systems without temperature compensation), not a problem with non-dilution extractive systems. Off-line testing should be allowed. Other commenters indicated that there can be a problem with different flue gas temperatures for dilution systems that use an in-stack orifice
 - CEMS is likely to fail calibration error test the first day back on line after prolonged downtime; this is particularly an issue for peaking units
- Permits
 - Current regulations require a dual petition process should be unified
 - While there is flexibility in the time limit for compliance demonstration for Part 75, Part 60 has 60-day requirement; add more flexibility to Part 60
 - Harmonize recertification policies
 - Timing of case-by-case determinations and waivers should be linked to permits deadline to allow for deadline exemption during waiver review process
 - States should not be able to limit the option for extended time frames for testing

- Multiple deadlines associated with the start up and commencement of commercial operation should consider time for unit shake down
- Monitoring
 - PEMS should be allowed for Part 75 compliance
 - For catalytic combustion systems, PEMS may be better than CEMS; supporting data will be provided to CAMD
 - Difficult to certify PEMS which is restricting their application
 - There is a disparity in CO monitoring requirements between Part 60 and Part 75 which should be corrected
 - Some questioned the need for CO CEMS
 - Add Part 75 QA for CO monitors (e.g., apply NO_x procedure to CO monitors)
- QA
 - QA procedures need to consider start up issues (Partial operating day and partial hours can be a problem -- issue also related to averaging of hours)
- Part 60 prescriptive requirements applying to span, drift, selection of analyzer ranges for new units can be a problem
- Low-emitting units
 - For very low emitting units, Part 60 certification is difficult to achieve because relative accuracy requirement is tight and also leads to daily calibration errors failure

III. Reference Methods

Input provided in advance:

- Harmonize applications of Method 20 and Method 7E and make methods more user-friendly
- Review available data to analyze if full traverses are necessary specifically for CTs with SCR controls and stratification in other configurations such as rectangular ducts
- Promulgate Conditional Test Method 27 (NH₃) so that RATAs for NH₃ CEMS can be performed
- NH₃ may be getting converted to NO_x or interfering with NO_x readings, especially for low emitters)

New Input:

- Methods 7E and 20
 - Traverse point selection
 - Is the Method 20 requirement still useful (preliminary O₂ traverse conducted to determine the eight sampling points used for the test)? How many times does it need to be repeated? Perhaps requirement can be dropped if the source demonstrates that no stratification exists at the test location; also, perhaps test can be done on just one stack in a group of stacks in several identical units instead of on all the units.
 - Allow Part 75 tests to be used for Part 60:
 - Expand use of like kind test exemptions
- Ammonia
 - Many states require NH₃ testing and NH₃ CEMS.

- Simple and precise NH₃ method needed; Recommendation to look at EPRI method under development
- States requiring NH₃ CEMS need a better reference method for testing
- Low concentrations can be a problem; no NIST- or EPA Protocol 1-certified NH₃ calibration gas standards are available; EPRI is talking to gas suppliers about calibration gas issue
- Mass balances should be considered as an alternative to an NH₃ CEMS
- EPRI claims that draft Method 27 produces errors as high as 38%
- HAPS monitoring
 - Opposition to Combustion turbine MACT standards being developed for formaldehyde
 - There is a concern about the current test methods (CARB 430 or FTIR) performance.
 -
- Particulate
 - Some states are requiring that gas-fired CTs test for particulate. Guidance for measuring these low levels is needed.

IV. Standards and Compliance Alternatives

Input provided in advance:

- Combine Subpart Da and GG emission limits for combined cycle units
- CEMS based compliance information should be adequate for demonstrating Part 60 compliance and provide a waiver from water to fuel ratio monitoring. There is also a question associated regarding what percentage monitor availability should be recommended in this case.
- Drop Subpart GG fuel bound nitrogen monitoring requirements for natural gas
- Drop Subpart GG fuel sulfur monitoring requirements for natural gas
- Alternatively, in Subpart GG, exempt sources from the fuel monitoring for units burning pipeline quality natural gas, indicating that the sulfur and nitrogen content in gas are very low and test are cumbersome
- Need to simplify Part 75 reporting for low emitters
- Evaluate the need for ISO correction in new state, local, or PSD regulations
- CTs should be able to use Part 75, App D to certify gas-fired units under NSPS
- CTs that are peakers should be required to test during winter time
- Monitoring exceptions for start up and shut down periods

New Input:

- Flow monitoring
 - States should allow fuel flow monitoring as described Appendix D of Part 75 as an option
- Sampling locations
 - Subparts Da and GG combination require testing at two locations because there are two combustion units with two separate standards. While Da has been fixed, Subpart GG has not. Also need to fix this for Subpart Db.
- Fuel nitrogen and sulfur
 - Delete *Part 60* fuel analysis for nitrogen if NO_x CEMS installed

- Delete *Part 60* sulfur monitoring requirement for natural gas
- Rely on AP-42 to show nitrogen content in fuels
- Fuel monitoring requirements should be retained for oil
- ISO corrections should be eliminated *in Part 60*
- Timing of compliance testing
 - Compliance tests should be scheduled for when a unit is up and operating; testing and grid demand should be coordinated when possible
 - Summer peaking units should not be required to test during winter
- Put PEMS on peaking units
- Make NO_x CEMS an option, not a requirement for Part 75 CTs

V. Miscellaneous Issues

Input provided in advance:

- Need to explore stability of calibration gases in the sub-ppm concentration range
- Low-level NO calibration gases are available in EPA Region 9, but are expensive and seem not to be available in other regions; need to explore the extent of the problem
- Need turbine-specific CEMS certification guidance

New Input:

- Harmonize recertification
 - Avoids need for dual (Parts 60 and 75) petitions for extensions for time
 - Schedule RATAs under Part 60 and Part 75 at same time
 - Could this be part of a consolidated rule for sources to opt in?
- Is monitoring necessary for very low-emitting units?
- Use a common EDR format for all reporting
- Availability of low-level NO cylinder gases is no longer a problem
- Compile all regional regulatory applicability determinations in one document that will apply in all regions

How To Improve the Process

- If it is broke, be sure that the cure is not worse than the disease
- Need to get state involvement and buy in to make changes work
- Streamline case-by-case approvals [look at the delegation of authority as possible streamlining approach]
- Look at how EPA introduced the new volumetric flow methods 2G, 2F, and 2H, and use it as an example of interaction among different areas of the Agency.
- Should revisions be made piece-meal or as part of a consolidated rule? The latter approach will reduce compliance and implementation costs, but could unacceptably delay action. Action is needed.
- Query states to identify if there are other examples of situations where Part 75 would cause a Part 60 compliance problem
- Consider prospective changes if retroactive would be too disruptive
- For quick action, changes should be emissions neutral (i.e. those which result in no net increase

in emissions, but merely simplify compliance)